

Chapter IV.
Agriculture.

Field Tools.

about £8 6s. (Rs. 83) and the return £12 (Rs. 120), that is a net profit of £3 14s. (Rs. 37).¹ In a betel and spice garden the yearly acre cost is estimated at £10 8s. (Rs. 104) and the yield at £21 10s. (Rs. 215), that is a net profit of £11 2s. (Rs. 111).²

The chief field tools are the shovel or *pāvda*, the half-pick or *kutar*, the pickaxe or *pikās*, the billhook or *hila*, the sickle hook or *kudugolu*, the rake harrow or *halki*, the clod crusher or *alay*, the plough *nāngar* or *negālu*, and the sowing drill-box or *kurige*. Other appliances are the water channel or *kolanbi*, the shallow trough-shaped basket or *sup*, the rice mortar or *vān*, the grass ball or *mura* in which rice is carried, and the wooden bludgeon or *kudti*. The shovel or *pāvda* is either rounded or square-nosed. It is used in turning loose soil in rice fields and gardens, is of local make, and costs about 1s. 6d. (12 as.). The half-pick or *kutar*, which is either edged or pointed, is used in opening hard soils; it is generally of local make and costs about 1s. (8 as.). The pickaxe or *pikās*, with an edge at one end and a point at the other, is used in opening hard stony ground; it is generally of Bombay make and costs about 2s. (Rs. 1). The billhook or *hila* is of two kinds, a lighter more curved and pointed hook used in cutting grass, and a heavier less curved and more rounded hook used in splitting and cutting wood and breaking cocoanuts and costing about 1s. (8 as.). The sickle or *kudugolu* has a thin much curved blade, the inner edge being furnished with a row of sharp teeth like the teeth of a saw; it is of local make and costs 6d. to 9d. (4-6 as.). The rake or harrow, *halki*, is of wood, with a six-feet long handle and a four-feet broad head with a row of about twelve wooden teeth; it is drawn either by oxen or by a man and is used in raking together surface litter before the field is ploughed; it is of local make and costs 2s. to 4s. (Rs. 1 - Rs. 2). The clod crusher or *alay* is a plank five feet long and a foot and a quarter broad, with a pole and bullock yoke drawn by a pair of bullocks driven by a man who stands on the middle of the board. The crusher is passed over sprouting rice to break the clods and quicken the growth of the young plants; it is of local make and costs about 4s. (Rs. 2). The plough called *nāngar* or *negālu* has a pole of porcupine that is cocoa-palm wood about eight

¹ The details are: The yearly acre return is £12 (Rs. 120) the value of two *khandis* or 1920 *shers* of *supari* at one *anna* the *sher*. The yearly acre cost is £4 10s. (Rs. 45) as interest on a capital of £50 (Rs. 500) spent in making the garden, £4 10s. (Rs. 45) in three years or £1 10s. (Rs. 15) yearly for manuring an acre of garden once in three years, 16s. (Rs. 8) for covering the bunches of nuts to prevent blight during the monsoon, 8s. (Rs. 4) for gathering the crop, 8s. (Rs. 4) for separating the husks from the kernels and cutting the kernels in half, 4s. (Rs. 2) for boiling and colouring the nuts, 4s. (Rs. 2) to brokers at 2s. (Rs. 1) the *khandi*, and 6s. (Rs. 3) for contingencies, making a total of £8 6s. (Rs. 83) and leaving a profit of £3 14s. (Rs. 37).

² The details are: The yearly acre return is £12 (Rs. 120) for 1920 *shers* of *supari* at one *anna* the *sher*; £7 10s. (Rs. 75) for three-fourths of a *man* of cardamoms at £10 (Rs. 100) a *man*; and £2 (Rs. 20) for 240 *shers* of pepper at 2d. (1½ *anna*) a *sher*; making a total of £21 10s. (Rs. 215). The yearly acre cost is, besides £8 6s. (Rs. 83) as detailed in the footnote for a betel-palm garden, 8s. (Rs. 4) for gathering and drying cardamoms, 10s. (Rs. 5) for training pepper vines, 8s. (Rs. 4) for pruning and hoeing cardamoms, 10s. (Rs. 5) for gathering and drying pepper, and 6s. (Rs. 3) for contingencies, making a total of £10 8s. (Rs. 104), and leaving a profit of £11 2s. (Rs. 111).

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feet long, an iron share eighteen inches long, and a handle of cheap timber sloping forward for two and a half feet and then back for a foot and a half. It is worked by one man and is drawn by a pair of bullocks or buffaloes. It is used in rice fields to turn the soil and make it ready for the seed. Hard soil is opened with the half-pick or *kutar* before the plough is used. In loose sandy soil the plough passes about a foot and in hard soil about six inches below the surface. The plough is of local make and costs 6s. to 10s. (Rs. 3-Rs. 5).¹ The sowing drill-box or *kurige* is used in sowing seed and costs 4½d. to 6d. (3-4 as.).

Other appliances are the water channel or *kolanbi*, made of a half palmyra palm stem hollowed five or six inches. It is used to lead water to cane fields and gardens. For drawing water, the shallow basket swung through the water by two men, the lever and bucket lift or *yata*, and the leather-bag or *kapali* are used.¹ Grain is winnowed in shallow trough-shaped baskets called *supis*, and rice is husked in a hollow piece of wood or stone called *ván* about six inches across and six inches deep, and pounded by two round pestles five or six feet long whose ends are armed with iron rings. When the rice is husked it is laid in grass and the grass is bound with wisps into a ball or *mura* of about ninety-six pounds (16 *kudavs*). The ball is shaped by beating it with a wooden bludgeon called *kudti* about two feet three inches long. Grain is ground into flour between two flat circular millstones, and curry powder is pounded with a pestle and mortar. Cocoanut husks are removed by knocking them against a pointed post called *shula* about three feet high and two inches broad, firmly fixed in the ground.

As the whole of the district has not been surveyed details of the area of the different classes of soil are not available. The area under tillage is estimated at about 330,000 acres or 12·0 per cent of the whole acreage. Most of the unarable waste is forest clad hill land.

Arable Area.

Rice and garden crops are watered by runnels brought from streams or rivers. On the west coast in the dry season, dams of earth, stones, and tree branches are thrown across streams and the lands near are watered, the dam being removed at the close of the dry season or left to be swept away by the floods. Some places are watered by canals from large ponds or *keris* and small ponds or *kattes*. Where the level of the water is below the field, if not very deep, it is scooped up by a basket hung on ropes and swung through the water by two men. If water has to be raised from a greater depth the lever and bucket lift or *yata* is worked either by one or two men, and, if the depth is still greater, it is drawn by the leather-bag or *kapali* worked by a pair of bullocks. When brought to the surface the water is generally carried to the crop along the hollowed trunk of a palm-tree. The 1881 returns showed 7647 ponds and 24,680 wells, 593 with and 24,087 without steps. In Honávar Kumta and Bhatkal the wells are fifty to sixty feet and in other parts of the coast fifteen to thirty feet deep. Above the Sahyádris

Irrigation.

¹ Details are given under Irrigation.

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the depth varies from thirty to sixty feet. In sandy soil a masonry well ten to twenty feet deep with steps costs about £30 (Rs. 300) and without steps about £20 (Rs. 200); in iron-clay or crumbled trap a well thirty to sixty feet deep costs about £65 (Rs. 650) with steps and about £50 (Rs. 500) without steps; and in the loamy soil along the Sahyádris a well costs about £70 (Rs. 700) with steps and about £50 (Rs. 500) without steps.

Kumri.

In the uplands until lately one of the most marked forms of tillage was the growing of crops on burnt unploughed hill clearings manured with wood ashes. This hill tillage, which was locally known as *kumri*, was chiefly carried on by Konkan Ate and Marátha or Are Kunbis and forest and hill tribes. Up to 1848 there was little restriction and the people cleared any portion of the forests they chose. In 1848 orders were issued forbidding hill clearings within nine miles of the sea and three miles of large rivers, reserving certain trees, and reducing the area under *kumri*. These forest clearings were of two kinds *vargdár* and *sarkár kumri*. *Vargdár kumri* was when the holder of the land had it worked by his tenants and paid a cash assessment of about 2s. (Re. 1) an acre. *Sarkár kumri* was when the actual husbandman paid for the land he cleared. From 1848 the Madras Government continued their efforts to reduce the amount of clearing tillage and in 1860 clearings of all kinds were forbidden. After the transfer of the district to Bombay (1862) this rule was relaxed and clearing was allowed to a limited extent. Since 1862 continuous efforts have been made to put a stop to this form of tillage, and the area has fallen from 7785 acres in 1863-64 to 844 acres in 1878-79.¹

During² November December and January the patch of hill-side to be used for tillage is cleared of brushwood and the branches of the large trees are lopped and pollarded. The loppings are left till March or April, when the sun and the easterly winds have made them as dry as tinder. When lighted the timber and brushwood burn fiercely, baking the soil three to six inches below the surface. The crop sown is generally *rági*, sometimes pulse or gourds, and occasionally *sésamum*. In most places the soil is left untouched and the seed is sown in the wood ashes after the first fall of rain. When the plants begin to sprout, a fence of fallen trees or a wattled hedge is raised round the clearing. Little skill or capital is wanted, but constant watching and constant weeding are required. The crop is reaped in the south of the district in October and November and in the north in November and December. The produce is said to be at least double what can be raised under the ordinary modes of tillage. In the second year the clearing yields a small crop and in Supa a still smaller crop is sometimes reaped in the third year. After this the clearing is deserted until the brushwood has grown high enough to tempt the people again to burn it.

Manure.

Garden crops are always manured. Cowdung is used when it can be had, and leaf manure when cowdung fails. In rice lands the

¹ Minute by Sir Richard Temple, G.C.S.I. & C.I.E., Governor of Bombay, 25th September 1879.

² From a report by Mr. W. Fisher, Collector of Kánara, 91 of 30th August 1858.

dressing is burnt. In gardens it is heaped round the trees, often covered with earth or sand, and left to decay. Salt was formerly much used for cocoa-palms; ordinary salt is now too dear, but the coarse salt-earth and the mud of tidal swamps are still a valued manure for palm gardens and rice land.

In every part of Haiga the cattle are kept in the house at night, and have a daily supply of fresh litter which varies at different seasons of the year. The litter and dung are carefully kept, the grass and leaf litter being stored in separate heaps. It is calculated that for the rainy crop an acre of rice land requires twenty to forty hundredweights of manure altogether worth 2s. to 4s. (Re. 1-Rs. 2); for the cold weather crop of rice or pulse the same field should have ten to twenty hundredweights costing 1s. 6d. to 2s. 6d. (12 as. - Rs. 1½). In November, December, January, and February the litter is dry grass which forms a manure known as *karadada-gobra*. In March, April, and May dry loaves of every kind, except prickly leaves and the leaves of the *Anacardium occidentale*, are used as litter and form a manure called *dregghina-gobra*. During the six remaining months (June to November) mostly of wet weather, fresh tree leaves are used as litter and make a dung called *hudi-gobra*. This fresh tree-leaf manure is the most esteemed. Wood ashes are stored in a separate pit, and are used for special purposes. As wood is plentiful cowdung is seldom used for fuel, and great care is taken that none of it is lost, women and boys following the cattle while at pasture and picking the droppings.

An average pair of bullocks in soft soil yielding one crop can plough three acres; in soft soil yielding two crops two acres; in hard soil yielding one crop two and a half acres; and in hard soil yielding two crops, one and a half acres.

Before the introduction of the survey the greater part of the land was divided into estates varying from a fifth of an acre to 1600 acres and averaging about 500 acres. Under the survey, rates have been separately fixed on small plots of lands and as these can be easily transferred many changes have taken place. It seems that many of the large estates have long been groups of moderate-sized holdings.

About half of the plough cattle are buffaloes and half oxen. Though they fatten on the green hill grass during the rains and are fed with hay and straw in the dry season, cattle do not thrive in Kánara. Many are brought from above the Sahyádris, chiefly from Nagar or Bednur in north-west Maisur. But these are small and poor. The field stock in Government or *khálsa* villages, according to the 1881-82 returns, included 45,806 ploughs, 4274 carts, 109,034 bullocks, 111,354 cows, 63,773 buffaloes, 374 horses, 6756 sheep and goats, and 123 asses.

As the revenue survey is not completed, no returns are available to show the area occupied by the different crops. Arranged in the order of importance, the chief crops are rice, *bhatta* or *nellu*, *Oryza sativa*; cocoanuts, *tengu*, *Cocos nucifera*; betelnuts, *adike*, *Areca catechu*; black pepper, *kare menasu*, *Piper nigrum*; cardamoms,

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